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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HAMA, JOANNE	

ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,403	SCHWARTZ ET AL.	
	Examiner	Art Unit	
	Joanne Hama, Ph.D.	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-8,10,12,13,76,80-83,85,87,88 and 137-139* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-8,10,12,13,76,80-83,85,87,88 and 137-139* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant filed a response to the Final Rejection of February 23, 2006 on May 25, 2006. The After Final Response has been entered. Claims 1, 5, 10, 139 are amended. Claims 2-4, 9, 11, 77-79, 84, 86 are cancelled. Claims 14-75, 89-136 are withdrawn.

Claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 87, 88, 137-139 are under consideration.

Upon further consideration, the finality of the instant application is withdrawn in light of the new rejections as follows.

Information Disclosure Statement

Applicant filed an Information Disclosure Statement (IDS), May 25, 2005. Not all references had been initialed August 9, 2005. It is noted that all references cited on the May 25, 2005 IDS have been considered as of this Office Action. A signed copy of the IDS indicating that the references have been considered has been provided by the Examiner.

Withdrawn Rejections

35 U.S.C. § 112, 1st parag.

Applicant's arguments, see pages 17-19 of Applicant's response, filed May 25, 2006, with respect to 1, 5-8, 10, 12, 13, 76, 80-83, 85, 137, 138 have been fully considered and are persuasive. With regard to Applicant addressing the issue of the scope of enablement with regard to "growth hormone releasing hormone," (GHRH) Applicant indicates that GHRH and its protein analogs are defined functionally as to

"enhance synthesis and secretion of growth hormone," parag. 52 of specification, of which, grehlin, which enhances secretion, does not enhance synthesis. As such, ghrelin does not fit this functional criterium and is distinct from the molecules identified as GHRH. This has been found persuasive. With regard to the scope of the claimed invention being limited to pigs and rats, Applicant has submitted a Declaration indicating that the claimed method does work in other farm mammals. This has been found persuasive. As such, the rejection of claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 137, 138 has been withdrawn. It is noted that claims 9, 84 are cancelled and thus, the rejection with regards to these claims is withdrawn.

35 U.S.C. § 112, 2nd parag.

Applicant's arguments, see page 19 of Applicant's response, filed May 25, 2006, with respect to the rejection of claim 139 have been fully considered and are persuasive. Applicant has amended the claim to address the issue of redundant phrases and to insert a missing element. The rejection of claim 139 has been withdrawn.

New Rejections/Objection

Claim Objection

Applicant is advised that should claims 10 and 85 be found allowable, claim 85 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both

cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 87, 88, 137-139 are newly provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 21-23 of U.S. Patent No. 6,423,693 ('693), in view of Schwartz et al. (US Patent, 6,551,996) ('996).

Claims 21-23 of '693 are drawn to methods of delivering to muscle cells in vivo an expression vector encoding GHRH, wherein the vector comprises 5' and 3' UTRs.

The portion of the specification support the claims indicates that the method is intended for livestock improvement ('693, col. 3, lines 8-9 and col., 35, lines, 20-41).

The '693 patent does not claim a synthetic muscle specific promoter.

The '996 patent taught a method of injecting into a muscle of a farm animal a plasmid vector encoding SEQ ID NO. 8 (HV-GHRH, an optimized protease resistant form of GHRH) under the control of a synthetic muscle specific promoter (SPc5-12). The site of injection was subsequently subjected to electroporation ('996, col. 6, lines 5-24, col. 22, lines 10-30). The method is intended to improve growth performance an increase the efficiency of the animal ('996, abstract; col. 8, lines 24-6;, col. 17, lines 31-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the promoter of '996 in the method of '693. One would have been motivated to do so because '996 taught that the SPc5-12 promoter greatly excedes the transcriptional potencies of natural muscle specific promoters ('996, col. 3 lines 45-50).

Although the cited references are silent with respect to improving the weight of offspring born to a pregnant mother injected with a vector comprising a nucleic acid sequence encoding GHRH or a protein analog thereof, the combined references render obvious all of the claimed active method steps, so the functional effects of the methods are considered to be inherent.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 87, 88, 137-139 are rejected in modified form under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for

a method of improving or enhancing weight gain in an offspring from a female mammal, wherein the female mammal is a farm mammal, comprising

introducing an effective amount of a vector directly into muscle cells of the female mammal prior to or during gestation of the offspring, wherein the vector is comprised of a nucleic acid sequence encoding growth hormone releasing hormone ("GHRH") or protein analog thereof, operably linked to a promoter and to a 3' untranslated region, wherein said nucleic acid sequence is expressed in the female mammal, and wherein the expression of said nucleotide sequence results in improved or enhanced weight gain or rate of weight gain of the offspring, and wherein the vector is a plasmid,

does not reasonably provide enablement for

a method of improving or enhancing growth in an offspring from a female mammal, wherein the female mammal is a farm mammal, comprising

introducing an effective amount of a vector into muscle cells of the female mammal prior to or during gestation of the offspring, wherein the vector is capable of expressing a growth hormone releasing hormone ("GHRH") or protein analog thereof in the female mammal during gestation, wherein the vector comprises a promoter; a nucleotide sequence capable of expressing the GHRH or protein analog thereof; and a

3' untranslated region, under conditions that promote expression of the nucleotide sequence, and wherein the introduction and expression of the nucleotide sequence results in improved or enhanced growth in said offspring and wherein the vector is a plasmid.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims, for reasons of record February 25, 2005 and August 5, 2005.

Enablement is considered in view of the Wands factors (MPEP 2164.01(a)). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (*Wands*, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (*Wands*, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or

unpredictability of the art, and (8) the breadth of the claims. While all of these factors are considered, a sufficient amount for a *prima facie* case are discussed below.

With regard to the claims being drawn to offspring with improved or enhanced growth, "growth," according to The American Heritage Dictionary of the English Language, 4th ed. [online], 2000 [retrieved on 2006-06-08]. Retrieved from the Internet:< URL: http://dictionary.reference.com/search?q=growth> is defined as:

1. a. The process of growing.

   b. Full development; maturity.

2. Development from a lower or simpler to a higher or more complex form; evolution.

3. An increase, as in size, number, value, or strength; extension or expansion: *population growth.*

4. Something that grows or has grown: *a new growth of grass.*

5. .*Pathology.* An abnormal mass of tissue, such as a tumor, growing in or on a living organism.

6. A result of growth; a product: *concerns that are a growth of the new responsibilities.*

As this applies to the instant invention, while the specification teaches that the pigs and rats exhibit weight gain (specification, Examples 14, 15, 21), the specification does not teach "growth" as it would apply to having a longer body size (e.g. snout to tail length or longer limbs) or reaching adulthood at a faster rate. As such, while the specification teaches weight, the specification does not teach other embodiments of "growth" which are encompassed by this term.

Claim 139 encompasses a method of introducing a vector to muscle cells via any route. This includes intravenous administration of vector. According to the art at the time of filing, administration of vector by any route is not route in the art. While it is envisioned that the vector can be delivered systemically, the art teaches that vectors are rapidly cleared from circulation and are preferentially taken up by the "first-pass" organs such as liver, lung and spleen (Fenske et al., 2001, Current Opnion in Molecular Therapeutics, 3: 153-158, see abstract). As this applies to the instant invention, it is unclear whether systemic delivery of vector is delivered to muscle cells in amounts that have effect. While the specification provides support for direct administration of vector to muscle cells, the specification does not teach other routes which can be used to administer vector to muscle cells.

For these reasons, claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 87, 88, 137-139 remain rejected.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 137 and 139 are newly rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 137 recites the limitation "vector" in claim 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 is a method claim, not a product claim.

Claim 139, line 4 of the phrase starting, "introducing..." appears to be missing the word "a" from the phrase, "operably linked to a eukaryotic promoter".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 87, 88, 137-139 are newly rejected under 35 U.S.C. 102(e) as being anticipated by Schwartz et al. (US Patent 6,551,996, patented April 22, 2003) as evidenced by Aihara et al., 1998, Nature Biotech., 16: 867-870, see IDS. The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this

application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Schwartz et al. teach a method of injecting into muscle of a farm animal, a plasmid vector encoding SEQ ID NO. 1 (HV-GHRH, an optimized protease resistant form of GHRH) under the control of a synthetic muscle specific promoter (SPc5-12). The site is subsequently subjected to electroporation (Schwartz et al., col. 6, lines 15-24; col. 22, lines 10-30). The method improves growth performance and increases the efficiency of the animal (Schwartz, et al., abstract, col., 8, lines 24-60; col. 17, lines 31-34; Example 10). Schwartz et al. teach that a variety of routes can be used for administration and that a particular route can provide a more immediate and more effective reaction than another route. One contemplated route is intramuscularly and that delivery may be achieved by electroporation. (Schwartz et al., col. 10, lines 7-12; col. 18, lines 33-39).

In describing the electroporation technique, Schwartz refers to the Aihara et al. reference (Schwartz et al., Example 7). Aihara et al. teach a method of electroporating nucleic acids into muscle by inserting electrode needles into muscle such that they encompassed the site into which DNA is injected (Aihara et al., page 867, 2nd col., 2nd full parag.). It is clear that the method of Schwartz et al. include delivery of nucleic acid to an area of tissue that is penetrated with a plurality of needles.

Although Schwartz et al. is silent with respect to improving the weight of offspring born to a pregnant mother injected with a vector comprising a nucleic acid sequence encoding GHRH or a protein analog thereof, Schwartz et al. anticipates all of the

claimed active method steps, so the function effects of the claimed methods are considered to be inherent in the method steps taught by Schwartz et al.

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See In re Ludtke 441 F.2d 660, 169 USPQ 563 (CCPA 1971). Whether the rejection is based on "inherency" under 35 USC 102, or "prima facie obviousness" under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. In re Best, Bolton, and Shaw, 195 USPQ 430, 433 (CCPA 1977) citing In re Brown, 59 CCPA 1036, 459 F.2d 531, 173 USPQ 685 (1972).

As such, Schwartz et al. anticipates claims 1, 5-8, 10, 12, 13, 76, 80-83, 85, 87, 88, 137-139.

Conclusion

No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joanne Hama, Ph.D. whose telephone number is 571-272-2911. The examiner can normally be reached Monday through Thursday and alternate Fridays from 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla, Ph.D. can be reached on 571-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

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